



25 JUN 2004

UNITED STATES PATENT AND TRADEMARK OFFICE

COMMISSIONER FOR PATENTS  
UNITED STATES PATENT AND TRADEMARK OFFICE  
P.O. Box 1450  
ALEXANDRIA, VA 22313-1450  
[www.uspto.gov](http://www.uspto.gov)

HORIZON IP PTE LTD  
166 KALLANG WAY  
6TH FLOOR  
SINGAPORE 349249, SINGAPORE

In re Application of MANGELINCK :  
U.S. Application No.: 10/707,968 :  
PCT Application No.: PCT/SG02/00174 : DECISION  
Int. Filing Date: 31 July 2002 :  
Priority Date Claimed: 31 July 2001 :  
Attorney Docket No.: ASTAP2004-01 :  
For: GATE ELECTRODES AND THE  
FORMATION THEREOF :  
:

This is in response to applicant's "Petition to Convert an Application Which Was Filed Under 35 U.S.C. § 111(A) to a National Application Filed Under 35 U.S.C. § 371" filed 26 May 2004.

**BACKGROUND**

On 31 July 2002, applicant filed international application PCT/SG02/00174, which claimed priority of an earlier Singapore application filed 31 July 2001. A copy of the international application was communicated to the USPTO from the International Bureau on 13 February 2003. The thirty-month period for paying the basic national fee in the United States expired on 31 January 2004.

On 29 January 2004, applicant filed application papers in the USPTO via the Electronic Filing System (EFS).

On 26 May 2004, applicant filed the present petition under 37 CFR 1.182.

**DISCUSSION**

The petition states that the 29 January 2004 filing was intended to be a national stage application under 35 U.S.C. 371. However, it is not yet possible to file a national stage application under 35 U.S.C. 371 via EFS.

The information on the USPTO's internet site states,

At this time EFS does not provi[d]e all the capabilities needed to author, submit and initially process electronic documents and attachments required for a complete 35 U.S.C. 371 National stage filing. A future release of EFS software will provide the software capabilities needed to author and electronically submit a National stage application via the Internet to the USPTO. An application enters the national stage process from an international application after compliance with 35 USC 371. See <http://www.uspto.gov/ebc/efs/faq/whattype.htm>.

The petition states that the EFS software provided applicant with the opportunity to specify the relationship between the present application and the PCT application. However, while the EFS software may be used to file a continuation of a PCT application, it does not permit the filing of a national stage application based on a PCT application. Furthermore, the fact that applicant may have incorrectly entered text into the "Continuing Data" field does not enable applicant to submit an impermissible application type.

U.S. statutes and regulations do not make specific provision for the requested conversion and as such the Office does not grant such petitions for conversion as a mere matter of course. The Office will only grant such petitions upon a showing by applicant of sufficient cause (e.g., the loss of patent rights) where no other remedy is available. In the present case, applicant has failed to make such a showing.

## CONCLUSION

For the reasons above, the petition under 37 CFR 1.182 is DISMISSED without prejudice.

If reconsideration on the merits of the petition is desired, a proper response must be filed within TWO (2) MONTHS from the mail date of this decision. Extensions of time are available under 37 CFR 1.136(a). Any reconsideration request should include a cover letter entitled "Renewed Petition Under 37 CFR 1.182".

Please direct further correspondence with respect to this matter to Mail Stop PCT, Commissioner for Patents, Office of PCT Legal Administration, P.O. Box 1450, Alexandria, Virginia 22313-1450, with the contents of the letter marked to the attention of the Office of PCT Legal Administration.



Bryan Tung  
PCT Legal Examiner  
Office of PCT Legal Administration

Telephone: 703-308-6614  
Facsimile: 703-308-6459

Appl. No.: 10/707,968

Petition to convert a §111(a) application to a §371 application, dated May 25, 2004  
Response to Notice Regarding Benefit/Priority Claim of Mar 23, 2004

## PATENT

## IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Appl. No. : 10/707,968 Confirmation No. : 1967

Applicant : Dominique MANGELINCK  
et al.

Filed : January 29, 2004

TC / A.U. : 2811

Examiner : Not Assigned Yet

Docket No. : ASTAP2004-01

Customer No. : 031366

Title : Gate Electrodes and the Formation Thereof

CERTIFICATE OF TRANSMISSION

I hereby certify that this correspondence is being  
facsimile transmitted to the United States Patent and  
Trademark Office, Alexandria, VA 22313-1450 on  
May 25, 2004.

Signed: Wendy

Wendy LIM

Mail-Stop PCT  
Commissioner for Patents  
P.O. Box 1450  
Alexandria, Va 22313-1450

Petition to convert an application which was filed under  
35 U.S.C. § 111(A) to a national application filed under 35 U.S.C. § 371

Sir:

This petition (Petition) is submitted under 37 CFR §1.182 to convert the above-mentioned application (Application) filed under 35 U.S.C. §111(a) to a national stage application filed under 35 U.S.C. §371.

06/25/2004 CSM00T 00000001 502388 10707968

Sale Ref: 00000001 DA#: 502388 10707968

01 FC:1460 130.00 DA

Appl. No.: 10/707,968

Petition to convert a §111(a) application to a §371 application, dated May 25, 2004

Response to Notice Regarding Benefit/Priority Claim of Mar 23, 2004

The filing receipt indicates that the Application has been treated as an application filed under 35 U.S.C. §111(a). However, the original intention of the Applicants is to file the Application under 35 U.S.C. §371 as a National Stage Application of International Application No. PCT/SG02/00174 (International Application), filed July 31, 2002, designating the United States of America.

The Application was filed using the Electronic Filing System (EFS), which provided an option on the "continuity data" screen to specify the §371 relationship between the present Application and the prior-filed International Application (*see Exhibit A*). The EFS software (ePAVE) automatically generated an application data sheet that clearly indicates that the Application is a National Stage of the International Application in the "Continuing Data" section (*see Exhibit B*), the International Application being identified by its PCT Application Number and International Filing Date. In addition, a reference to the International Application was provided in the originally filed specification (*see Exhibit C*), clearly indicating that the Application is a National Stage of the International Application.

Accordingly, Applicants respectfully request that the present Application be treated as a filing under 35 U.S.C. §371. Please charge the Petition fee of \$130.00 under 37 CFR 1.53(b)(1) to Deposit Account No. 50-2388. The Commissioner is further authorized to charge any additional fees which may be required, or credit any overpayment to this account. Issuance of a corrected formal filing receipt is respectfully solicited.

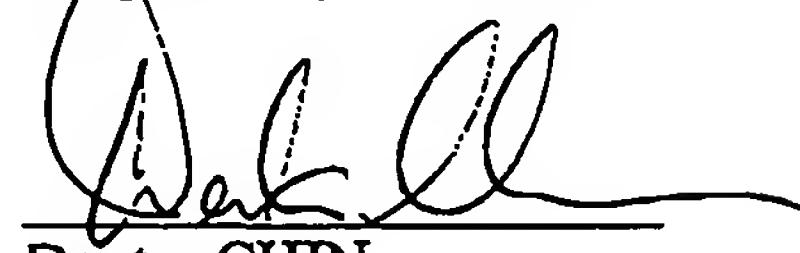
Appl. No.: 10/707,968

Petition to convert a §111(a) application to a §371 application, dated May 25, 2004

Response to Notice Regarding Benefit/Priority Claim of Mar 23, 2004

Dated: May 25, 2004

Respectfully submitted,

  
Dexter CHIN  
Attorney for Applicants  
Reg. No. 38,842

Horizon IP Pte Ltd  
166 Kallang Way,  
6<sup>th</sup> Floor  
Singapore 349249  
Tel: (65) 9836 9908  
Fax: (65) 6746 8263

Exhibit A

ScPave 5.1 - New Utility / Application Data Sheet / Continuity data

**Actions**

- Add common data elements
- Attach files to the project
- Validate the project
- Submit to USPTO
- Obtain acknowledgement receipt

**New Utility**

- Application Data Sheet
- Correspondence address
- Inventor
- Continuity data
- Attorney Information
- Foreign priority claims
- Publication information
- Publication assignee information
- Preview (Application Data Sheet)

Declaration

- Preview (Declaration)

Power of attorney

- Preview (Power of attorney)

Assignment

- Preview (Assignment)

Information disclosure statement

- Preview (IDS)

Fee Transmitted

- Fee calculation
- Method of payment
- Preview (Fee transmitted)

**Legends**

- Required for this submission type
- Required, but allowed to submit
- Optional for this submission type
- Required for some submissions

Application Num: 2004-01-26

Country: UNITED STATES OF AMERICA (U)

Priority: 2004-01-26

Continuity: 2004-01-26

Fee Transmitted: 2004-01-26

Fee Calculation: 2004-01-26

Method of Payment: 2004-01-26

Exhibit C

# SPECIFICATION

[Electronic Version 1.2.8]

## GATE ELECTRODES AND THE FORMATION THEREOF

### Cross Reference to Related Applications

This application is the National Stage of International Application No. PCT/SG02/00174, filed July 31, 2002, and which was published in English under PCT Article 21(2) as WO 03/012876 A1 on February 13, 2003. The international application claims priority to Singaporean Application No. 200104614-3, filed July 31, 2001..

### Background of Invention

[0001] Referring to Figure 1 of the accompanying drawings, a complementary metal oxide semiconductor (CMOS) transistor comprises an n channel MOS (NMOS) and a p channel MOS (PMOS). Historically, a polycrystalline n+-Si gate is used as a gate electrode both in NMOS and PMOS transistors. For PMOS transistors additional boron implantation into the channel region of the Si substrate is needed to control the threshold voltage because of the low work function of n+-Si. This can produce short channel effects and large sub-threshold currents and thus the PMOS transistor is less scaleable than the NMOS transistor. In order to solve this problem, a dual gate configuration where polycrystalline n+-Si and p+-Si are used as the gate for the NMOS and PMOS transistors, respectively, has been suggested. However, the dual gate CMOS has drawbacks, most notably boron penetration (for PMOS) through the gate oxide and the poly-depletion effect. Instead of using a dual gate, a material with a work function close to the value of the middle of the bandgap of silicon (4.61 eV), can be used for both NMOS and PMOS transistors. A material with such a work function is called a mid-gap material and the process utilising this material for a gate electrode is known as mid-gap CMOS technology.

[0002] In addition, the contact surface of the gate electrode is actually provided by a silicide layer (TiSi<sub>2</sub>, CoSi<sub>2</sub>, PtSi<sub>2</sub>, PtSi or NiSi) on top of the polycrystalline Si gate (e.g. n+-Si) in current CMOS fabrication processes. At relatively high temperatures (e.g. 600°C), the silicide film is usually degraded by two phenomena: inversion and agglomeration. Inversion is due to the grain growth of Si during the formation of

\*\*\*\*\*  
\*\*\* RX REPORT \*\*\*  
\*\*\*\*\*

RECEPTION OK

TX/RX NO 6587  
RECIPIENT ADDRESS 6567468263  
DESTINATION ID  
ST. TIME 05/24 22:54  
TIME USE 04'01  
PGS. 10  
RESULT OK